ISSUE BRIEF

FORESTS, ENERGY, AND LIVELIHOODS

PREPARED BY FAO, IUFRO, UNDP AND UNFF SECRETARIAT IN SUPPORT OF THE INITIATIVE OF THE UNFF18 BUREAU

MARCH 2023

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Lead Authors

Nelson Grima (IUFRO), Hossein Moeini-Meybodi (UNFF Secretariat), Tim Scott (UNDP), Zuzhang Xia (FAO)

Technical Reviewers and Contributors

Juliette Biao (UNFF Secretariat), Ciara Daniels (UNDP), Arturo Gianvenuti (FAO), Diana Salvemini (UNDP), Sven Walter (FAO)

Layout and Design

Josie Raine, UNDP

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1 Executive Summary

The world faces cascading, interlinked, and unprecedented socio-economic and environmental crises, including climate change, biodiversity loss, and environmental degradation. These crises are exacerbated by each other and risk increasing poverty, inequality, fragility and conflict. They are weakening global growth prospects, raised energy, food, and commodity prices, and disrupted supply chains and global trade. Within this context, deforestation and forest degradation trends remain unsustainable, and hundreds of millions of people still lack access to clean, affordable, and efficient sources of energy.

Forests and energy are vital for addressing these challenges and for achieving global sustainable development. To maximize the contribution of the forest and energy sectors to the enhancement of livelihoods, and accelerate progress on the Sustainable Development Goals, integrated, holistic, and nexus approaches on the forest, energy, and welfare sectors are critical. Such approaches offer more effective and efficient models of development that enhance synergies and mitigate the negative impacts of trade-offs through stronger governance within and across these sectors. Inter-sectoral coordination that leverages the expertise and influence of a more diverse group of public, private, and civil society actors and institutions at all levels, as well as increased technical, financial, and technological collaboration are all needed to translate the high ambition of global goals into transformative action on the ground.

Photo: UNDP Mongolia

1 Introduction

The High-Level Political Forum under the auspices of the UN General Assembly Summit on Sustainable Development Goals (SDG Summit) will be held in September 2023 in New York. It will be used to review SDG progress and provide policy recommendations for accelerating achievement of the SDGs. As an initiative in preparations for this Summit, the Bureau of the eighteenth session of the UN Forum on Forest (UNFF18) will convene a one-day hybrid event on “Forests, Energy, and Livelihoods” in UNHQ in New York on 4 April 2023. This Issue Brief[1] is prepared by the UNFF Secretariat, FAO, IUFRO, and UNDP to inform discussions at the event. The Issue Brief includes an overview of global trends on forests, energy, and livelihoods, and related policy and research. It analyses the nexus and interlinkages of forests, energy, and livelihoods, including the contribution of forests and forest products to wood-based bioenergy. It considers measures to: i) address the negative impacts of bioenergy; ii) promote and ensure access to efficient and clean bioenergy; iii) reverse deforestation, forest degradation, biodiversity loss, and climate change, and; iv) improve livelihoods, reduce poverty, and promote decent employment and health through a just transition. The Issue Brief also offers recommendations for integrated policies on forests, energy, and livelihoods that advance the SDGs, and that will inform preparations for and follow-up to the SDG Summit and other global fora and events in 2023.

2 Global trends on forests, energy, and livelihoods, and their significance for the SDGs

Photo: Getty Images

The world faces cascading, interlinked, and unprecedented socio-economic, and environmental crises and conflicts. Energy poverty remains extensive, with close to 1 billion people without access to electricity – predominantly in sub-Saharan Africa – and more than 2.4 billion people still using inefficient and polluting cooking systems, which generate harmful household air pollution responsible for an estimated 3.2 million premature deaths in 2020, according to the World Health Organization (WHO).[2] It is estimated that about half of the wood extracted from forests is burnt as fuel for energy uses, with the highest share of around 90% in Africa.[3] Woodfuels are traditionally used for cooking and heating by more than 2 billion people worldwide with limited energy options at the household level.[4] This represents roughly one-third of the world's population and two-thirds of households in Africa. In many regions, the current traditional use of biomass fuels requires women and children to spend many hours per week collecting and carrying biomass that is burned in highly inefficient and polluting stoves. The current pace of progress is insufficient to achieve SDG7 on energy by 2030.[5] If current trends continue, only 2% of the world's population will have access to electricity in 2030, leaving 670 million people unserved.[6]

Between 2010 and 2020, the proportion of people with access to clean cooking fuels and technologies increased by 12%, reaching 69%.[7] Huge disparities in access to modern sustainable energy persist. If current trends continue, only 76% of the global population will have access to clean cooking fuels and technologies by 2030.[8]

The world's forest area continues to decline, particularly in the tropics. The FAO Global Forest Resources Assessment (FRA) 2020 estimated that 420 million ha of forest were deforested (converted to other land uses) between 1990 and 2020; although the rate declined over the period, deforestation was still estimated at the rate of 10 million ha per year in 2015–2020 (2 million ha less per year than in

2010-2015). At this rate of reduction, however, achieving the SDG 15 target of halting deforestation will take another 25 years.[9] Agricultural expansion is driving almost 90% of global deforestation, including 49.6% from expansion for cropland and 38.5% for livestock grazing. Changes in forest area vary widely from region to region. Africa had the highest net loss of forest area in 2010 –2020, with a loss of 3.94 million hectares per year, followed by South America with 2.60 million hectares per year, mostly due to the conversion of forests into agricultural land. Asia showed the highest net gain in forest area in the period 2010 –2020, followed by Oceania and Europe. Both Europe and Asia reported a net forest gain for each ten-year period since 1990 due to afforestation, landscape restoration, and the natural expansion of forests, although both regions show a substantial reduction in the rate of gain since 2010.

Biomass is supplying 25% of the total material demand, comprising organic materials such as food crops, meat and dairy products, and a host of forest and other biomass products.[10] Biomass used for energy is used most often for producing heat. It can be considered climate neutral and a renewable energy source when its use does not lead to a net reduction in global forest area or plant cover that would in turn reduce the function of the Earth's natural biological carbon sinks. This means that the availability of biomass that can sustainably be used in the energy system is finite; there is a limit to the share of the global renewable energy supply that can be supported by biomass.[11]

Photo: Biomass congeneration plant. Getty images.

3 Nexus between forests, energy, and livelihoods, and its impacts on the SDGs

Photo:: Tock Soulasen Phommasen/UNDP Lao PDR SAFE project

Forests are vital to achieving global sustainable development. They provide solutions for addressing many development challenges including poverty eradication, environmental sustainability, food security, energy supply, clean water and watershed protection, biodiversity conservation, mitigation of and adaptation to climate change, combating desertification and land degradation, and disaster risk reduction. More than 1.6 billion people worldwide strongly depend on forests for food, medicine, fuel, and for their livelihood.

Globally, forests cover around 31% of land area, contain over 80% of the world's terrestrial biodiversity, and store more carbon than the atmosphere. Healthy and resilient forests play a critical role in climate change mitigation and adaptation. Being the largest storehouse of carbon after the oceans, forests have the potential to absorb and store about one-tenth of global carbon emissions projected for the first half of this century into their biomass, soils, and products.[12]

Forests and trees are closely linked to energy and livelihoods, as well as to other ecosystems and to water and food security. The interconnections between these sectors call for integrated, holistic, and nexus approaches for better efficiency, enhanced synergies, and reduced trade-offs towards improvement of governance across sectors. In addition to the traditional use of woodfuels in many countries, there are now more modern uses of woodfuels through high-efficiency energy conversion systems in international energy markets as commercial products on an industrial scale. In particular, this is the case of wood pellets, which have been used in some industrialized countries for the generation of electricity, cogeneration of heat and power, or heating for residential and commercial buildings. In this way, they partially substitute coal or other fossil fuels as a means of reducing greenhouse gas emissions. They also create direct and external cost savings by minimizing air pollution, environmental degradation, and the negative impacts related to climate change.

While the share of wood-based energy consumption declined to about 5.8% of total global energy use from around 10% fifty years ago,[13] woodfuels from forests and trees still provide roughly 40% of the global renewable energy supply, or as much as solar, hydroelectric, and wind power combined.[14] Energy services are just part of the functions that forests can provide in support of livelihoods. Forests also contribute to livelihoods through provision of employment opportunities, wood products (such as timber, fuelwood, and other fiber materials), non-wood forest products (including wild food, such as fruits, nuts, vegetables, mushrooms, wild meat, and honey, fodder, aromatic or medicinal plants, resin, etc.), and ecological services and ecotourism resources, as well as social and cultural functions, and other non-material services. A recent study estimates that approximately 33 million people globally were employed in the forest sector in the period 2017-2019, accounting for 1% of total employment across all economic activities.[15] An earlier study by FAO estimated that about 880 million people engaged in the informal woodfuel sector along the value chains, including wood collection or logging, charcoal production,transportation, and trade of woodfuels.[16] The modern use of solid biomass (particularly wood pellets) for power and heat applications alone accounts for 5.6% of the renewable energy jobs worldwide in 2021.[17]

The road map set out for the global energy sector by the International Energy Agency (IEA) indicates that under the net-zero-emission scenario, the modern use of bioenergy, mainly in the form of woodfuels, would need to increase by around 60% between 2020 and 2050.[18] This would coincide with a shift away from the traditional use of biomass for energy. There is a long-standing debate, however, about the climate impacts of industrial scale use of primary materials for woodfuels and the sustainability criteria associated with related woodfuel production and consumption. Woodfuels make an important contribution to energy provisions and are critical for much of the world's population living in poverty and vulnerable situations.

An estimated one-third of woodfuel extraction in the tropics is unsustainable. The gap between demand and sustainable supply can be bridged by restoring degraded forests, moving away from the inefficient use of woodfuel for cooking, establishing environmentally appropriate tree plantations, improving the use of residues from wood harvesting and processing, and recovering post-consumer wood through a cascading use within a circular economy.[19]

It is therefore essential that woodfuels are considered a part of broader efforts to accelerate progress across a range of Sustainable Development Goals, including:

- SDG7 by providing woodfuel for cooking, heating, and industrial needs (including power generation and

cogeneration of heat and power),

- SDG7 protecting watersheds to enable hydropower generation;
- SDG3 because of the implications of air pollution from woodfuel on health;
- SDG5 because of the role of women in collecting and utilizing woodfuel;
- SDG6 because of the implications of water availability for hydropower;
- SDG12 by reducing the material footprint and environmental impact regarding present consumption and production of woodfuel;
- SDG13 by addressing climate change, mitigation, and adaptation, through the substitution of fossil fuels; and
- SDG15 due to the scale of woodfuel production from forests.

The high share of wood for energy use in total wood production from forests has significant implications on value-added uses of wood resources and the conservation of forest resources.

Using primary wood material as fuel on a large scale also raises concerns about their social, economic, and environmental impacts, including indoor air pollution leading to health problems especially for women and children, forest degradation, which negatively affects the supply of forest ecosystem services, and greenhouse gas emissions associated with climate change.[20] These concerns can be addressed at various levels, such as increasing efficiency in the woodfuel conversion and utilization processes e.g., with improved charcoal production kilns and woodstoves), enhancing the use of wood residues for energy, and increasing access to high-efficiency energy systems. [21,22]

Photo: UNDP/Pixabay

4 Challenges impacting an integrated and coherent approach to forests, energy, and livelihoods

Photo: UNDP China

The interlinkages between forests, energy, and livelihoods described above, exist within a much broader context of socio-economic, environmental, and political drivers of unsustainable growth and societal challenges. The global community faces multiple complex crises, including growing poverty, inequality, and fragility, which are further exacerbated by the threat of climate change, biodiversity loss, and environmental degradation and vice versa. Increased heatwaves, droughts, wildfires, and floods are already affecting billions of people around the globe and causing potentially irreversible damage to the Earth's ecosystems.

Global growth prospects have weakened significantly amid these crises, which have raised energy, food, and commodity prices, and disrupted supply chains and global trade. Against this backdrop, world output growth is projected to decelerate from an estimated 3% in 2022 to only 1.9% in 2023, marking one of the lowest growth rates in recent decades.[23]

For the first time, the global Human Development Index value has declined for two years in a row. Many communities feel alienated from their political systems, and there are growing trends towards nationalism, protectionism, and democratic backsliding.

Many stakeholder groups already living in marginalized contexts are now at greater risk. These include Indigenous Peoples, women, youth, small-scale farmers, migrant and seasonal workers, entrepreneurs and families living below or near the poverty line in rural, semi-urban, and urban areas. Many of these groups are directly engaged in the traditional wood fuel value chain for their livelihoods and/or rely on traditional wood fuels for cooking and other household needs. These crises have been exacerbated by the impact of the COVID-19 pandemic and many of the public and private sector policies put in place in response.

At the same time, the underlying drivers of the triple planetary crises of biodiversity loss and environmental degradation, the changing climate, and pollution – which all posed threats to marginalized groups and development prior to 2020 – continue. These drivers and the way governments, the private sector, and other local stakeholders respond to them also have a direct impact on livelihood pressures and opportunities linked to woodfuels. This is despite efforts to address them by reversing unsustainable trends through the 2030 Agenda, Paris Agreement, Kunming-Montreal Global Biodiversity Framework, and other multilateral environmental agreements.

The 2022 IPCC report[24] shows that countries are bending the curve of global greenhouse gas emissions downward, but the world is still on track for around 2.5 degrees Celsius of warming by the end of the century. The latest World Wide Fund for Nature report[25] finds that wildlife population sizes have declined by 69% on average since 1970. Deforestation, natural resource exploitation, pollution, and climate change are the biggest drivers of this loss. The latest State of Food Security and Nutrition report[26] shows a reversal in efforts to eliminate hunger and malnutrition. The number of people affected by hunger rose to over 800 million in 2021, an increase of about 150 million since 2020. At the same time, over 500 million people still lack access to affordable, reliable forms of clean energy. These data points help to explain how pressures on communities and households to rely on traditional woodfuels can be exacerbated. They also help to inform policy responses needed to ensure more sustainable livelihoods. Conflicts across the globe are having a cascading impact within and across countries and regions and exposing systemic governance and market-based risks and instability. This includes growing levels of food and energy insecurity, public and private debt, inflation, forced migration, and unemployment in the formal and informal sectors. ILO's World Employment and Social Outlook: Trends 2023[27], for example, estimates that global unemployment will increase in 2023 to over 200 million, which is 16 million above the pre-crisis benchmark set in 2019. Unemployment rates can vary greatly and are even higher in some country contexts and forest-energy sectors.

As the 2021-2022 UNDP Human Development Report[28] notes, a new "uncertainty complex" is emerging that comprises three dangerous strands: growing planetary pressures, societal transformation in response to these pressures, and growing polarization. This new uncertainty complex contributes to the crises outlined above while creating new barriers to sustainable development, including the public and private sector policy issues and incentives relevant to forests, energy, and livelihoods. In some cases, it is difficult for alternative and/or more sustainable livelihoods to receive sufficient policy attention, given policymakers' focus on these broader macro-economic issues.

The complex drivers of these crises must be considered when designing the

integrated responses needed to leverage synergies and stronger development outcomes around the forests, energy, and livelihoods nexus. This in turn requires a better understanding of their potential negative impacts on stakeholder groups that rely on traditional woodfuels and linked livelihoods, as well as options not only for mitigating these risks, but also for catalyzing transformative change that building inclusive, resilient, and sustainable economies puts communities and countries on track for a more inclusive and just green transition.

Because of the interconnectedness of world economies, financial systems, and trade and supply chains, decisions made in one capital, sector, or commodity often have a ripple effect with unintended consequences in other countries and sectors. This includes direct and indirect impacts on public and private decision-making and investments at the national and subnational level of forest management, de-risking clean energy markets, and on linked incentives affecting livelihoods and household consumption such as credit, interest rates, subsidies, price controls, and regulations. Each of these broader policy responses has direct and indirect impacts on the ability of stakeholders to engage more, or less, in sustainable livelihoods and entrepreneurship linked to woodfuels.

Over the past year, there have been significant public interventions in the energy sector. If designed smartly, these policies can help ensure a just, clean energy transition. At the same time, they must consider the distributional impacts on households, entrepreneurs, and workers. This should include a focus on the use of woodfuel and align with the work of such initiatives as the Clean Cooking Alliance.

Photo: Getty Images

5 Opportunities to enhance integrated and coherent policies on forests, energy, and livelihoods to advance the SDGs

Photo: UNDP

Many of the greatest challenges for forests described above are cross-sectoral. Addressing them requires improvements in international forest governance towards significantly strengthening the engagements with the energy, transportation, industry, agricultural, mining, finance, and other sectors. International forest institutions and actors have been aware of this problem and called for it to be addressed for decades. However, the need to identify and promote effective inter-sectoral coordination and collaboration to address the forests-energy-livelihoods nexus, has not yet been fully met. Such collaboration is needed to leverage the full expertise and influence of a more diverse group of public, private, and civil society actors and institutions at all levels. There is also a need to strengthen monitoring and evaluation of results achieved by this collaboration across sectors. At the same time, the platforms for policy learning must encourage broad participation and ensure that, while forest policy embraces cross-sectoral and cross-institutional complexity, it retains a central focus on forests and forest livelihoods.[29]

The productivity and sustainability of forests is deeply influenced by the interactions in space and time of the ecological, economic, social, political, and cultural spheres within which forests are embedded. Those interactions create a wide range of interrelated drivers that affect forests, including climate change, population growth, urbanization, agricultural expansion, rising food prices, or armed conflicts. These drivers can act through changes in consumption patterns and livelihoods, in turn influencing land use and management. The design of effective and integrative responses to these complex influences across multiple scales is a major challenge, but designing responses that focus exclusively on the forest sector risk missing essential drivers.

The SDGs can only be achieved through the management of resilient landscapes on a multi-functional basis, combining the production of food and clean and renewable energy, conserving biodiversity, and maintaining the provision of other ecosystem services.[30,31]

The design of responses that enhance integrated policies and optimize synergies between the forest, energy, livelihoods, and other sectors, should include co-regulatory approaches that involve public and private actors. The creation of new institutional arrangements should consider social and environmental justice and equity (in particular, the rights of women, marginalized and vulnerable communities, youth and future generations); tenure and property rights, since securing them offers higher probability of capturing benefits for those holding the rights; harmonization and coherence of laws, regulations, and policies; coordination between implementing authorities across scales; and the strengthening of science-policy integration. [32,33,34]

Decision-makers need to embrace complexity, through a) promoting the integration of different sectors to create solutions, and b) context specific approaches that pay attention to inequalities and social and economic heterogeneity. These approaches may create trade-offs over stages of the transition that to address will require that the design, funding, and implementation of policies and programs consider other measures in place in the same region, which could generate not only conflicts, but also synergies with the measures to be implemented. Decision-makers should also keep in mind that forests are perceived and used differently at different socioeconomic development stages, and decisions should consider how the relationships between forests and people evolve beyond present context or short-term needs. Only in this way can forests be sustainably managed to ensure the provision of forest ecosystem services on which societies and economies depend.

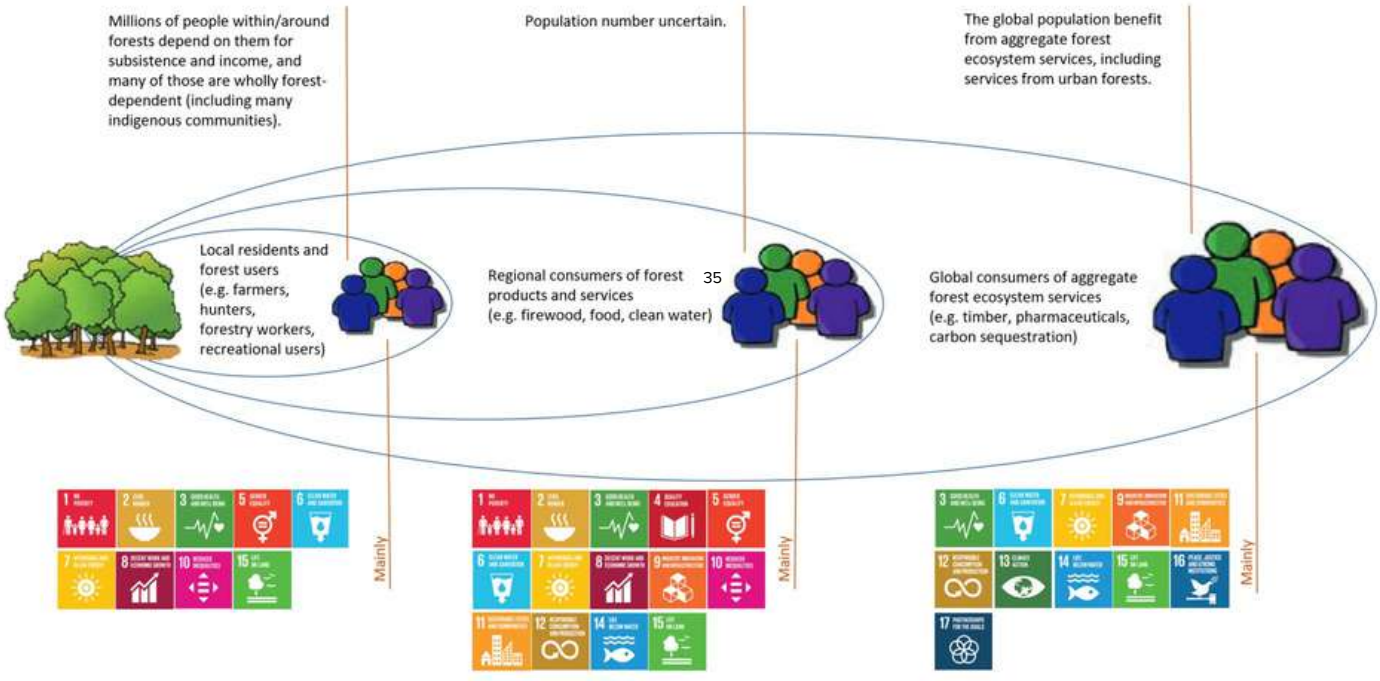
Millions of people within/around forests depend on them for subsistence and income, and many of those are wholly forest-dependent (including many indigenous communities).
Population number uncertain.
The global population benefit from aggregate forest ecosystem services, including services from urban forests.
Local residents and forest users (e.g. farmers, hunters, forestry workers, recreational users)
Regional consumers of forest products and services (e.g. firewood, food, clean water)
Global consumers of aggregate forest ecosystem services (e.g. timber, pharmaceuticals, carbon sequestration)
Mainly
Mainly
Mainly

Figure 1. Key contributions of forests to the SDGs according to scale level (local, regional, and global). Source: modified from Katila et al. (2019).[35]

Local actors in forested and mosaic landscapes, such as civil society, local private sector, and local governments also have a key role in advancing the development and implementation of integrated and coherent approaches and policies on forests, energy, and livelihoods. There is an urgent need to scale up locally-led action for forest conservation and sustainable management and mobilize stronger finance and technical assistance for such locally-led action. This is especially needed as much of the control of finance and decision making is held at the national and international levels. In some cases, this means that local actors are not empowered to exercise their own agency for forest conservation, landscape management, sustainable agriculture, and other SDG-related activities. In this respect, it is worth indicating that development partners are increasingly providing their contributions to locally-led initiatives aimed at achieving SDGs, as well as goals and targets of the Paris Agreement, Kunming-Montreal Global Biodiversity Framework, and other MEAs through the Nationally determined contributions (NDCs), National Biodiversity Strategy and Action Plans (NBSAPs), and similar national and sectoral strategies.

Photo: UNDP Ecosystems and Biodiversity

6 Policy recommendations for accelerating achievement of the SDGs and the way forward

Photo: UNDP Ecosystems and Biodiversity

Global and national enabling environments

- Strengthening global solidarity, multilateralism, and conflict resolution to ensure systemic, integrated, and coherent policies and measures in the forestry and energy sectors to meet the SDGs and enhance livelihoods.
- Accelerating technological collaboration and innovation on the ground, increasing finance and shifting investment flows toward greater SDG dividends; strengthening institutional capacities and public and private sector systems of governance for sustainable forest management, greater access to clean, affordable and efficient energy sources for all, and enhanced livelihoods.
- Achieving energy and linked nature-climate goals will require continued policy support and a massive mobilization and better targeting of public and private capital for clean, affordable, efficient, and sustainable energy sources, especially in low- and middle-income countries.
- Implementing strategies for transforming the energy sector through a just transition towards a modern use of energy to maximize synergies and minimize trade-offs with other Sustainable Development Goals, including combating climate change (Goal 13), achieving food security (Goal 2), integrated and sustainable land use management (Goal 15), and protecting freshwater sources (Goal 6), as well as with the goals of the Paris Agreement, Kunming-Montreal Global Biodiversity Framework, UN Strategic Plan on Forests, and relevant MEAs.
- Bridging the gap to facilitate the transition from fossil fuels to modern bioenergy through policy instruments such as capital grants, subsidies and feed-in tariffs to ensure long-term guaranteed prices.
- Adopting clean cooking solutions can reduce health risks from household air pollution, support a more inclusive, green, and healthy recovery, particularly in low- and middle-income countries. The design and enforcement of stronger regulations is therefore needed, accompanied by measures to increase access to clean and efficient cooking technologies.

- The nexus approach is critical and highlights the role of forests in Agenda 2030. It implies cross-sectoral intersections and policy coherence involving forests, addressing both new opportunities for sustainable forest management as well as the current threats of unsustainable practices.

- The 2022 UN General Assembly recognized “a clean, healthy, and sustainable environment as a human right”– and a right for all, not just a privilege for some. The centrality of forests to the fulfillment of this human right should be recognized and considered at the 2023 SDG summit.

- The United Nations Strategic Plan for Forests 2030 and its Global Forests Goals should be integrated into national strategic plans and activities to better reflect this centrality of forests in the view of maximizing the multiple benefits of forests to people and the planet.

- The UN Forum on Forests should work with key relevant global entities, including within the UN System, such as the UN-Water Conference, and UN-Energy SE for All, as well as relevant functional commissions such as the Commission on the Status of Women (CSW) for more coherence and synergy.

Policies and Governance

- Decision-makers should be encouraged to

    - Promote a more coherent, holistic, and integrated approach on sectoral issues relevant to forests, energy, and livelihoods, with special attention to inequalities and social and economic heterogeneity.

    - Consider the broader set of fiscal, debt, and other macroeconomic and geo-political drivers of crisis and unsustainable patterns of production and consumption within and across countries and regions. This requires the integration of forest-energy-livelihoods priorities into national and sectoral policy frameworks, including NDCs and NBSAPs, and more focused forest, energy, social protection, and growth strategies and initiatives.

    - Address tenure issues and conflicting incentives, including subsidies and other fiscal policies, while aligning different, contradictory sectoral policies.

    - Support local multi-stakeholder engagement platforms for transparency, participation, empowerment, peer-to-peer knowledge exchange, policy advocacy, and channel investments to local innovators and SMEs to upscale forest conservation solutions.

- Promote systemic changes in public and market-based governance systems that enable the modernization of wood energy value chains and the decline of unregulated open access to wood resources.

- Market prices for wood should be established to reflect the true costs of sustainable wood production. For this to happen, national governments, with the help of relevant international organizations, should put in place proper institutional measures and incentives, while mitigating any harmful consequences for local communities through policies such as:

    - differentiated taxation systems in favor of community-based, sustainably sourced wood;
    - revenue sharing with communities;
    - strengthening of decentralized forest authorities for law enforcement and land use planning;

    - easily enforceable permit systems for access to wood resources based on simple management plans developed with local stakeholders;
    - design and implementation of rigorous social and environmental standards and safeguards.

Science, data, and research

- It is imperative to invest in and advance applied policy-relevant research, data collection, foresight and cost-benefit analysis, and the use of digital technologies, including geo-spatial and remote sensing data and measuring devices.

- Quantitative and qualitative data and analysis should consider the needs and knowledge of all stakeholder groups while ensuring the full use of gender expertise and disaggregated data.

Stakeholder engagement

- Increasing the engagement of stakeholders, including Indigenous Peoples, local communities, women, girls, youth, and other marginalized groups in decision-making for sustainable management of forests and other natural resources is key to policies relevant to the forest-energy-livelihoods nexus. Additional rights of these stakeholder groups also need to be protected, including the right to access to information, and the right to access to resources and justice.

- Technical assistance, financing from domestic, international, and public-private sources, South-South and Triangular Cooperation, knowledge management, and information sharing should be provided and scaled up, including to and from Indigenous Peoples and local communities, in forest and mosaic landscapes for locally-led initiatives in sustainable forest management, ecosystem restoration, landscape planning and management, sustainable agricultural intensification, biofuels development, ecotourism, and linked policy areas.

Endnotes

Photo: UNDP Montes de María Mauricio Enriquez

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